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    FILE 'MEDLINE' ENTERED AT 12:25:17 ON 02 AUG 2000
L1             0 S HIV DIAGNOSIS WITH URINE AND DIPSTICK?
L2           687 S HIV AND URINE
L3             0 S L2 AND DRY CHEMISTRY
L4             1 S L2 AND STRIP
L5             0 S HIV DIAGOS? AND URINE
L6             0 S HIV DIAGNOS? AND URINE
L7           687 S HIV AND URINE
L8           211 S L7 AND DIAGNOS?
L9             0 S L8 AND LATERAL FLOW
L10       230629 S L8 AND COLOR OR CHROMO?
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L8 ANSWER 89 OF 211 MEDLINE
ACCESSION NUMBER: 97107834 MEDLINE
DOCUMENT NUMBER: 97107834
TITLE: **Urine** samples as a possible alternative to serum for human immunodeficiency virus antibody screening.
AUTHOR: Martinez P; Lejarazu R O; Eiros J M; Benito J D; Rodriguez-Torres A
CORPORATE SOURCE: Microbiology Laboratory Service, University Hospital, Valladolid, Spain.
SOURCE: EUROPEAN JOURNAL OF CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES, (1996 Oct) 15 (10) 810-3.
Journal code: EM5. ISSN: 0934-9723.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199705

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L8 ANSWER 94 OF 211 MEDLINE
ACCESSION NUMBER: 97035383 MEDLINE
DOCUMENT NUMBER: 97035383
TITLE: FDA approves **urine** test [news].
AUTHOR: Anonymous
SOURCE: AMERICAN JOURNAL OF NURSING, (1996 Sep) 96 (9) 12.
Journal code: 3MW. ISSN: 0002-936X.
PUB. COUNTRY: United States
News Announcement
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals; Nursing
Journals
ENTRY MONTH: 199701
ENTRY WEEK: 199701

L8 ANSWER 44 OF 211 MEDLINE
ACCESSION NUMBER: 1999065437 MEDLINE
DOCUMENT NUMBER: 99065437
TITLE: Sensitive enzyme immunoassay of antibodies to **HIV**-1 p17 antigen using indirectly immobilized recombinant p17 for **diagnosis** of **HIV**-1 infection.
AUTHOR: Ishikawa S; Hashinaka K; Hashida S; Oka S; Ishikawa E
CORPORATE SOURCE: Department of Biochemistry, Miyazaki Medical College, Kiyotake, Japan.
SOURCE: JOURNAL OF CLINICAL LABORATORY ANALYSIS, (1998) 12 (6) 343-50.
Journal code: JLA. ISSN: 0887-8013.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199904
ENTRY WEEK: 199904

L8 ANSWER 47 OF 211 MEDLINE
ACCESSION NUMBER: 1999020055 MEDLINE
DOCUMENT NUMBER: 99020055
TITLE: **Urine** testing for **HIV**-1 [news].
AUTHOR: Anonymous
SOURCE: AMERICAN JOURNAL OF NURSING, (1998 Oct) 98 (10) 25.
Journal code: 3MW. ISSN: 0002-936X.
PUB. COUNTRY: United States
News Announcement
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals; Nursing
Journals
ENTRY MONTH: 199902
ENTRY WEEK: 199902

8/2

L8 ANSWER 68 OF 211 MEDLINE
ACCESSION NUMBER: 97472488 MEDLINE
DOCUMENT NUMBER: 97472488
TITLE: Home collection and non-blood-based methods of testing for the human immunodeficiency virus.
AUTHOR: Goetsch R; Minor J R; Piscitelli S C
CORPORATE SOURCE: Division of Pharmacovigilance and Epidemiology, Food and Drug Administration, Rockville, MD, USA.
SOURCE: AMERICAN JOURNAL OF HEALTH-SYSTEM PHARMACY, (1997 Oct 1) 54
(19) 2232-5. Ref: 19
Journal code: CBH. ISSN: 1079-2082.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199801
ENTRY WEEK: 199801

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L8 ANSWER 70 OF 211 MEDLINE
ACCESSION NUMBER: 97437861 MEDLINE
DOCUMENT NUMBER: 97437861
TITLE: More reliable **diagnosis** of infection with human immunodeficiency virus type 1 (**HIV**-1) by detection of antibody IgGs to pol and gag proteins of **HIV**-1 and p24 antigen of **HIV**-1 in **urine**, saliva, and/or serum with highly sensitive and specific enzyme immunoassay (immune complex transfer enzyme immunoassay): a review [published erratum appears in J Clin Lab Anal 1998;12(1):76].
AUTHOR: Hashida S; Hashinaka K; Ishikawa S; Ishikawa E
CORPORATE SOURCE: Department of Biochemistry, Miyazaki Medical College, Japan.
SOURCE: JOURNAL OF CLINICAL LABORATORY ANALYSIS, (1997) 11 (5) 267-86. Ref: 62
Journal code: JLA. ISSN: 0887-8013.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199801

L8 ANSWER 72 OF 211 MEDLINE
ACCESSION NUMBER: 97432384 MEDLINE
DOCUMENT NUMBER: 97432384
TITLE: **Diagnostic** tests for **HIV**.
AUTHOR: Anonymous
SOURCE: MEDICAL LETTER ON DRUGS AND THERAPEUTICS, (1997 Aug 29) 39 (1008) 81-3.
Journal code: M52. ISSN: 0025-732X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199711
ENTRY WEEK: 199711

L8 ANSWER 80 OF 211 MEDLINE
ACCESSION NUMBER: 97271770 MEDLINE
DOCUMENT NUMBER: 97271770
TITLE: Comparative field evaluation of **HIV** rapid **diagnostic** assays using serum, **urine**, and oral mucosal transudate specimens.
AUTHOR: Tribble D R; Rodier G R; Saad M D; Binson G; Marrot F; Salah S; Omar C; Arthur R R
CORPORATE SOURCE: U.S. Naval Medical Research Unit No. 3, Cairo, Egypt.
SOURCE: CLINICAL AND DIAGNOSTIC VIROLOGY, (1997 Feb) 7 (3) 127-32. Journal code: CNQ. ISSN: 0928-0197.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199708
ENTRY WEEK: 199708

L8 ANSWER 85 OF 211 MEDLINE
ACCESSION NUMBER: 97141289 MEDLINE
DOCUMENT NUMBER: 97141289
TITLE: **Urine**-based **diagnostic** technologies.
AUTHOR: Urnovitz H B; Murphy W H; Gottfried T D; Friedman-Kien A E
CORPORATE SOURCE: Calypte Biomedical Corporation, Berkeley, CA 94710, USA.. hervdoc@aol.com
SOURCE: TRENDS IN BIOTECHNOLOGY, (1996 Oct) 14 (10) 361-4. Ref: 26
Journal code: ALJ. ISSN: 0167-7799.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals; B
ENTRY MONTH: 199704
ENTRY WEEK: 199704

CCESSION NUMBER: 91218777 MEDLINE
DOCUMENT NUMBER: 91218777 PubMed ID: 2023597
TITLE: [Cloning and expression of the CD4 receptor gene from human
T-lymphocytes in Escherichia coli cells].
Klonirovanie i ekspressiia v kletkakh Escherichia coli fragmentov gena CD4-retseptora T-limfotsitov cheloveka.
AUTHOR: Zverev V V; Shakhov A N; Nedospasov S A; Pugach A V; Sidorov A V; Maliushova V V; Andzhaparidze O G
SOURCE: MOLEKULIARNAIA GENETIKA, MIKROBIOLOGIA, I VIRUSOLOGA, (1991
Jan) (1) 16-8.
Journal code: NMJ; 9315607. ISSN: 0208-0613.
PUB. COUNTRY: USSR
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: Russian
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199105
ENTRY DATE: Entered STN: 19910623
Last Updated on STN: 19910623
Entered Medline: 19910531

AB The gene for the CD4-membrane glycoprotein-receptor for HIV has been cloned. The 179 amino acids fragment of the CD4-receptor responsible for binding of gp120 HIV glycoprotein has been fused with **beta-galactosidase** and shown to be expressed in Escherichia coli cells. The recombinant protein in **ELISA** and immunoblotting techniques reacts with the monoclonal antibodies OKT4A and Leu3A known to block the interaction between the CD4 and gp120 HIV glycoprotein. The recombinant protein can be used for different scientific and practical purposes including studying of the mechanisms for HIV interaction with the sensitive cells as well as for viral gp120 protein purification, etc.

ACCESSION NUMBER: 1998252380 MEDLINE
DOCUMENT NUMBER: 98252380 PubMed ID: 9591706
TITLE: Ultrasensitive and rapid enzyme immunoassay (thin aqueous layer immune complex transfer enzyme immunoassay) for antibody IgG to HIV-1 p17 antigen.
AUTHOR: Ishikawa S; Hashida S; Hashinaka K; Adachi A; Oka S; Ishikawa E
CORPORATE SOURCE: Department of Biochemistry, Miyazaki Medical College, Kiyotake, Japan.
SOURCE: JOURNAL OF CLINICAL LABORATORY ANALYSIS, (1998) 12 (3) 179-89.
Journal code: JLA; 8801384. ISSN: 0887-8013.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199806
ENTRY DATE: Entered STN: 19980713
Last Updated on STN: 19980713
Entered Medline: 19980626
AB The immune complex transfer enzyme immunoassay for antibody IgG to HIV-1 p17 antigen was performed in two different ways (the present immunoassays I and II) within shorter periods of time than previously reported. In the present (simultaneous) immunoassay I, antibody IgG to HIV-1 p17 antigen in 10 microL of serum samples was incubated simultaneously with 2,4-dinitrophenyl-maltose binding protein-recombinant p17(rp17) fusion protein and rp17-beta-D-galactosidase conjugate in a total volume of 22 microL for 10 min to form the immune complex comprising the three components. The reaction mixture was incubated with a polystyrene bead of 6.35 mm in diameter coated with affinity-purified (anti-2,4-dinitrophenyl group) IgG for 5 min in a styrol test tube (13.3 x 54 mm and 2.1 g) to trap the immune complex. After washing, the polystyrene bead was incubated with 30 microL of epsilonN-2,4-dinitrophenyl-L-lysine solution in a polystyrene tube (12 x 75 mm) coated with affinity-purified (antihuman IgG gamma-chain) IgG for 10 min to transfer the immune complex. In the present (sequential) immunoassay 11, a polystyrene bead of 6.35 mm in diameter coated successively with affinity-purified (anti-2,4-dinitrophenyl group) IgG and 2,4-dinitrophenyl-maltose binding protein-rp17 fusion protein was incubated in a styrol test tube (13.3 x 54 mm and 2.1 g) sequentially with antibody IgG to HIV-1 p17 antigen in 10 microL of serum samples in a total volume of 16 microL for 5 min and subsequently with rp17-beta-D-galactosidase conjugate in a volume of 10 microL for 5 and 10 min. The immune complex formed on the polystyrene bead was transferred to a polystyrene tube coated with affinity-purified (antihuman IgG gamma-chain) IgG for 5 and 10 min in the same way as in the present immunoassay I. During the incubations, the styrol test tubes containing the polystyrene beads and reaction mixtures were shaken, and the polystyrene test tubes were rotated with shaking, so that the polystyrene beads were rotated randomly, and small drops (16 to 30 microL) of the reaction mixtures evenly contacted all parts of the solid phase surfaces during the incubations, though only small parts of the solid phase surfaces were contacted at one time. The intent was to continuously mix thin aqueous layers of the reaction mixtures covering the solid phase surfaces with the

rest of the reaction mixtures. (Therefore, these immunoassays were called thin aqueous layer immunoassays.) beta-D-Galactosidase activity bound to the polystyrene tubes was assayed by fluorometry for 30 and 60 min. The present immunoassays I and II, in which only 15 to 25 min were used for the immunoreactions, were as sensitive if not more so than the previous immune complex transfer enzyme immunoassay requiring 150 min for the immunoreactions. In these earlier immunoreactions, the immune complex comprising the three components formed by 30 min incubation was trapped onto two polystyrene beads (3.2 mm in diameter) coated with affinity-purified (anti-2,4-dinitrophenyl group) IgG for 60 min, and was then transferred to two polystyrene beads (3.2 mm in diameter) coated with affinity-purified (antihuman IgG y-chain) IgG for 60 min in a total volume of 150 microL. Furthermore, the present (sequential) immunoassay 11 (and probably I) could become approximately 10 times more sensitive by assaying bound beta-D-galactosidase activity for a longer period of time (10 h), since beta-D-galactosidase activity, bound nonspecifically in the presence of serum samples from HIV-1 seronegative subjects, was considerably low.

ACCESSION NUMBER: 97437858 MEDLINE
DOCUMENT NUMBER: 97437858 PubMed ID: 9292391
TITLE: More sensitive immune complex transfer enzyme immunoassay for antibody IgG to p17 of HIV-1 with shorter incubation time for immunoreactions and larger volumes of serum samples.
AUTHOR: Ishikawa S; Hashida S; Hashinaka K; Kojima M; Saito A; Takamizawa A; Shinagawa H; Oka S; Shimada K; Ishikawa E
CORPORATE SOURCE: Department of Biochemistry, Miyazaki Medical College, Japan.
SOURCE: JOURNAL OF CLINICAL LABORATORY ANALYSIS, (1997) 11 (5) 244-50.
Journal code: JLA; 8801384. ISSN: 0887-8013.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199710
ENTRY DATE: Entered STN: 19971224
Last Updated on STN: 19990129
Entered Medline: 19971027

AB In the previous immune complex transfer enzyme immunoassay for antibody IgG to p17 of HIV-1, the immune complex comprising 2,4-dinitrophenyl-bovine serum albumin-recombinant p17 conjugate, anti-p17 IgG, and recombinant p17-beta-D-galactosidase conjugate was trapped onto polystyrene beads coated with (anti-2,4-dinitrophenyl group) IgG by overnight incubation and was transferred to polystyrene beads coated with (antithuman IgG gamma-chain) IgG by 3 hr incubation in the presence of excess of epsilon N-2,4-dinitrophenyl-L-lysine. These processes were made efficient by incubation with shaking and by using solid phases with larger surface areas. In addition, the volume of serum samples used was increased from 10 microliters to 100 microliters. As a result, the sensitivity was improved 20-30-fold and was approximately 100,000-fold higher than that of Western blotting for p17 band, even when both trapping and transferring of the immune complex were performed for only 30 min. Furthermore, testing many samples became easily possible with higher sensitivity using microplates and a fluororeader.

L15 ANSWER 3 OF 3 MEDLINE
ACCESSION NUMBER: 95270318 MEDLINE
DOCUMENT NUMBER: 95270318 PubMed ID: 7751042
TITLE: A nonradioisotopic reverse phase **dipstick** hybridization method for **detection** of polymerase chain reaction amplified product.
AUTHOR: Bawa N; Broor S; Seth P
CORPORATE SOURCE: Department of Microbiology, All India Institute of Medical Sciences, New Delhi.
SOURCE: INDIAN JOURNAL OF MEDICAL RESEARCH, (1995 Apr) 101 142-6.

Journal code: GJF; 0374701. ISSN: 0971-5916.
PUB. COUNTRY: India
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199506
ENTRY DATE: Entered STN: 19950629
Last Updated on STN: 19970203
Entered Medline: 19950622

AB A rapid and simple nonradioisotopic method has been developed for **detection** of polymerase chain reaction (PCR) amplified product. Digoxigenin-11-dUTP (DIG-11-dUTP) was incorporated in the amplified product by including it in the PCR reaction mixture. The PCR product was **detected** colorimetrically either directly or by reverse phase hybridization method where an unlabelled oligo-nucleotide probe was immobilized on a nitrocellulose **dipstick** and the digoxigenin labelled PCR product was in the liquid phase. With this system the PCR product could be **detected** even after 10 cycles of amplification by both direct and hybridization methods. The method was applied on the amplified product of DNA from peripheral blood mononuclear cells from 10 HIV-1 ELISA positive and 8 ELISA negative individuals. PCR was positive in all ELISA positive, Western blot positive individuals from whom HIV-1 was also isolated. PCR was negative in all ELISA negative individuals.

ACCESSION NUMBER: 89247164 MEDLINE
DOCUMENT NUMBER: 89247164 PubMed ID: 2541748
TITLE: Patterns of antibody recognition of selected conserved amino acid sequences from the HIV envelope in sera from different stages of HIV infection.
AUTHOR: Shafferman A; Lennox J; Grosfeld H; Sadoff J; Redfield R R;
Burke D S
CORPORATE SOURCE: Department of Virus Diseases, Walter Reed Army Institute of
Research, Washington, D.C. 20307.
SOURCE: AIDS RESEARCH AND HUMAN RETROVIRUSES, (1989 Feb) 5 (1) 33-9.
Journal code: ART; 8709376. ISSN: 0889-2229.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198907
ENTRY DATE: Entered STN: 19900306
Last Updated on STN: 19970203
Entered Medline: 19890703
AB A total of six amino acid sequences encoded in conserved regions of the HIV-env (three from gp120 and three from gp41) were selected as potential antigenic domains. These sequences (11-20 amino acids) were fused to the NH2 terminus of **beta-galactosidase** by recombinant DNA techniques, and the purified chimeric proteins were used to titer (by immunodots) 75 sera from HIV-infected individuals of various stages. All the **HIV antigens** were recognized by some or all the HIV-seropositive sera but by none of the control sera. Of the three conserved domains in gp41, two are highly immunodominant. All (100%) HIV-seropositive sera reacted with one of these immunodominant domains in titers (approximately 1:100,000) almost two orders of magnitude higher than any other tested domain. This emphasizes the diagnostic value of the epitopes (ERYLKDQLLGIWGCSGKLIC) previously (see Refs. 11 and 12) identified in this domain. A decrease in average antibody titers is observed in late stages of infection for all the antigens tested, yet distribution of antibody reactivity was independent of stage for only three of the six domains. A significantly higher proportion of reactivity of seropositive sera in early stage (62%) compared with late stage (11%) of infection was found for a domain (NVTENFNMWKN) mapped at the NH2 terminus of gp120; serum antibody reactivity with this domain also correlated with a lack of culturable HIV in blood mononuclear cells.

ACCESSION NUMBER: 96159704 MEDLINE
DOCUMENT NUMBER: 96159704 PubMed ID: 8587001
TITLE: Evaluation of a **dipstick** method for the **detection** of human immunodeficiency virus infection.
AUTHOR: Beristain C N; Rojkin L F; Lorenzo L E
CORPORATE SOURCE: Research and Biotechnology Center, Rosario, Argentina.
SOURCE: JOURNAL OF CLINICAL LABORATORY ANALYSIS, (1995) 9 (6) 347-50.
Journal code: JLA; 8801384. ISSN: 0887-8013.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199603
ENTRY DATE: Entered STN: 19960404
Last Updated on STN: 19970203
Entered Medline: 19960327

AB Serology has been a fundamental tool to prevent post-transfusional infection with human immunodeficiency virus (HIV) and for epidemiological surveys, the first step to attempt control of the pandemia. Enzyme immunoassay is in widespread use. Nevertheless, simpler methods are needed in many countries, where laboratory facilities and trained personnel are limited, and HIV prevalence is high. The evaluation of a simple and noninstrumented **HIV antibody** test is presented here.
The test employs synthetic antigens of HIV-1 and HIV-2 attached to the teeth of a polystyrene comb, which fit into the wells of standard microtiter plates where samples are diluted. Captured antibodies are developed with colloidal gold-labeled Protein A. Three seroconversion panels plus 662 samples were tested, including HIV-1 and HIV-2-infected individuals, normal blood donors, and a noninfected baby born to a seroreactive mother. When compared with enzyme-linked immunosorbent assay (ELISA) and Western blot, the **dipstick** showed 100% sensitivity and 98.7% specificity. The simplicity of result evaluations and excellent reagent stability make the **dipstick** suitable for small blood banks and for epidemiological surveys.

ACCESSION NUMBER: 1998252376 MEDLINE
DOCUMENT NUMBER: 98252376 PubMed ID: 9591702
TITLE: Potential of the immune complex transfer enzyme immunoassay for antigens and antibodies to improve the sensitivity and its limitations.
AUTHOR: Ishikawa E; Ishikawa S; Hashida S; Hashinaka K
CORPORATE SOURCE: Department of Biochemistry, Miyazaki Medical College, Kiyotake, Japan.
SOURCE: JOURNAL OF CLINICAL LABORATORY ANALYSIS, (1998) 12 (3) 154-61.
Journal code: JLA; 8801384. ISSN: 0887-8013.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199806
ENTRY DATE: Entered STN: 19980713
Last Updated on STN: 19980713
Entered Medline: 19980626

AB In order to reduce the nonspecific signal of noncompetitive solid phase immunoassays and to improve their sensitivities, the immune complex transfer enzyme immunoassay has been developed. Antigens to be measured were reacted with 2,4-dinitrophenyl-biotinyl-antibody Fab' and antibody Fab'-beta-D-galactosidase conjugate, and antibody IgGs to be measured were reacted with 2,4-dinitrophenyl-antigen and antigen-beta-D-galactosidase conjugate. The immune complexes formed comprising the three components were trapped onto colored polystyrene beads coated with affinity-purified (anti-2,4-dinitrophenyl group) IgG. After washing, the immune complexes were eluted from the colored polystyrene beads with epsilonN-2,4-dinitrophenyl-L-lysine, and the eluates were incubated with white polystyrene beads coated with streptavidin for antigens and coated with affinity-purified (anti-human IgG gamma-chain) IgG for antibody IgGs to transfer the immune complexes. By this method, ultrasensitive enzyme immunoassays have been developed for HIV-1 p24 antigen and antibody IgGs to HIV-1 p17 and reverse transcriptase (RT). The nonspecific signals in the absence of the antigen and the antibody IgGs were reduced 300 to 15,000-fold by the immune complex transfer process, but the amounts of the immune complexes decreased only 1.8 to 3.1-fold by the immune complex transfer. As a result, the sensitivities for HIV-1 p24 antigen and antibody IgGs to HIV-1 p17 and RT were improved 100 to 5,600-fold by the immune complex transfer. The detection limit of HIV-1 p24 antigen by 20 hr assay of beta-D-galactosidase activity (10 zmol) was 4,000 to 17,000-fold lower than those obtained with currently available commercial kits. The improved sensitivities for antibody IgGs to p17 and RT by 20 hr assay of beta-D-galactosidase activity were 1 x 10(5) to 3 x 10(5)-fold higher than those of Western blotting for p17 and p66 bands. However, the nonspecific signals in the absence of antigens and antibody IgGs were enhanced to various degrees by two factors. In order to transfer the immune complexes more efficiently within shorter periods of time, the colored polystyrene beads were incubated with the white polystyrene beads in the presence of epsilonN-2,4-dinitrophenyl-L-lysine. Such direct contact between solid phases for trapping and transferring of the immune complexes significantly enhanced the nonspecific signals. In addition, the presence of human serum

samples containing neither antigens to be measured nor antibody IgGs to be measured also enhanced the nonspecific signals to various extents. Namely, these two factors limited the effect of the immune complex transfer to improve the sensitivity by 20 hr assay of beta-D-galactosidase activity. By 1 hr assay of beta-D-galactosidase activity, the detection limit of HIV-1 p24 antigen using 10 microl of serum samples (0.24 pg/ml) was 40 to 80-fold lower than those obtained with currently available commercial kits using 100 to 200 microl of serum samples (10 to 20 pg/ml) and the detection limits of antibody IgGs to HIV-1 p17 and RTwere 1 x 10(4) to 3 x 10(4)-fold lower than those by Western blotting for p17 and p66 bands. Finally, the immunoreactions involved in the immune complex transfer enzyme immunoassays--the formation, trapping, and transferring of the immune complexes--will be performed within 15 to 30 min.